UNITED STATES PATENT AND TRADEMARK OFFICE

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10/643,629	08/18/2003	Wei Li	50277-2248	4456

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EXAMINER
ALAM, SHAHID AL

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PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte WEI LI, JIANSHENG HUANG, and ARI MOZES

_____

Appeal 2009-005241
Application 10/643,629[1]
Technology Center 2100

_____

Before JEAN R. HOMERE, CAROLYN D. THOMAS, and
JAMES R. HUGHES, *Administrative Patent Judges.*

THOMAS, *Administrative Patent Judge.*

DECISION ON APPEAL[2]

_____

[1] Application filed August 18, 2003. The real party in interest is Oracle
International Corporation.
[2] The two-month time period for filing an appeal or commencing a civil
action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing,
as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE"
(paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery
mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134(a) of the
Examiner's final decision rejecting claims 21-28. We have jurisdiction over
the appeal under 35 U.S.C. § 6(b).

We REVERSE.

The present invention relates to techniques for performing frequent
itemset operations.

Claim 21 is illustrative:

> 21. A method for performing a frequent itemset
> operation, the method comprising the steps of:
>
>> performing the frequent itemset operation in a
>> plurality of phases, wherein each phase is associated with
>> combinations that have a particular number of items;
>>
>> during at least one phase of the plurality of phases,
>> performing the steps of
>>
>>> determining candidate combinations that are
>>> to be evaluated during the phase;
>>>
>>> grouping the candidate combinations into
>>> clusters, wherein each cluster corresponds to a common
>>> combination of items, and wherein all candidate
>>> combinations in a given cluster include the common
>>> combination of items associated with the cluster;
>>>
>>> processing said candidate combinations,
>>> based on said clusters, to determine whether the
>>> candidate combinations satisfy a frequency criteria
>>> associated with said frequent itemset operation; and
>>>
>>> storing, in a computer-readable medium,
>>> data that indicates which candidate combinations satisfy

the frequency criteria associated with said frequent
itemset operation.

Appellants appeal the following rejection:

Claims 21-28 under 35 U.S.C. § 102(b) as anticipated by Agrawal (US
6,324,533 B1, Nov. 27, 2001).

FACTUAL FINDINGS

Specification

1a. Appellants' Specification discloses that "the term 'cluster' refers
to a set of combinations that have a base bitmap in common." (Spec.
¶[0080].)

1b. Appellants' Specification further discloses that "[a]nother
technique for clustering combination involves hashing the combinations into
buckets based on sub-combinations." (Spec. ¶[0084].)

Agrawal

2. *Agrawal* discloses:

> The basic Apriori method for finding frequent itemsets makes
> multiple passes over the data. . . . in the candidate generation
> phase, the set of all frequent (k-1)-itemsets . . . is used to
> generate the candidate itemsets C_k. The candidate generation
> procedure ensures that C_k is a superset of the set of all frequent
> k-itemsets. The algorithm builds a specialized hash-tree data
> structure in memory out of C_k. . . . For each transaction, the
> algorithm determines which of the candidates in C_k are

> contained in the transaction using the hash-tree data structure
> and increments their support count.

(Col. 5, ll. 32-47.)

ANALYSIS

Our representative claim, claim 21, recites, *inter alia, "grouping the candidate combinations into clusters."* All other independent claims recite similar limitations. Thus, the scope of each of the independent claims includes grouping the candidate combinations into clusters.

Issue: Did the Examiner err in finding that Agrawal discloses grouping the candidate combinations into clusters?

Appellants contend that "[n]othing is taught or suggested that even remotely may be interpreted as grouping the candidate combinations into clusters." (App. Br. 6.) Appellants further contend that "[b]oth sections of *Agrawal* cited by the Examiner refer to candidate *generation*, and *not* grouping candidate combinations *after* the candidate combinations have already been generated." (Reply Br. 5.) We agree.

While the Examiner has identified sections in *Agrawal* for allegedly teaching "grouping the candidate combinations into clusters," (*see* Ans. 3), the Examiner further appears to allege that grouping the candidate combinations into clusters is inherent in *Agrawal*. (Ans. 10.) We disagree on both accounts.

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As for *Agrawal* allegedly disclosing the above-noted limitation, we find that while Agrawal discloses a *candidate generation* procedure, the Examiner has not identified, and we do not readily find, where Agrawal discloses *grouping the candidate combinations into clusters* and processing the candidate combinations based on the clusters.

In Appellants' Specification, a cluster is defined as a set of combinations that have a base bitmap in common (FF 1a) and that a technique for clustering involves hashing the combinations into buckets based on sub-combinations (FF 1b). While Appellants have defined a cluster as any superset, here, *Agrawal* merely discloses that C_k (candidate itemsets) is a superset of the set of all frequent k-itemsets (FF 2). In other words, *Agrawal's* candidates can be seen as one cluster within all frequent k-itemsets. However, claim 21 requires grouping the candidate combinations themselves into clusters, not putting the candidate itemsets into one cluster, as done in *Agrawal*. Thus, we cannot sustain the Examiner's rejection based on the above-noted teachings.

As for the Examiner's assertion that *Agrawal* inherently discloses "grouping the candidate combinations into clusters," we find this assertion unpersuasive. When relying upon a theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the Examiner's determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1463-64 (BPAI 1990). Here, the Examiner merely makes

a determination without providing *any* basis in fact and/or technical reasoning (*see* Ans. 10). No factual support is provided by the Examiner, nor did the Examiner provide any technical reasoning to show that *Agrawal* inherently discloses grouping candidate combinations into clusters. *Agrawal's* mere mention of the terms *superset* and/or a *hash-tree* does not necessarily leads to the grouping of the "candidate combinations into clusters." "Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates." *In re Cruciferous Sprout Litig.,* 301 F.3d 1343, 1349 (Fed. Cir. 2002) (citations and internal quotation marks omitted). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson,* 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted). We find that *Agrawal,* at best, *may* do further clustering. However, this is not sufficient under the laws of inherency. Thus, we also cannot sustain the Examiner's rejection based on inherency.

As such, based on the record before us, we find that the Examiner did err in rejecting representative claim 21. Accordingly, we reverse the rejections of claims 21-28.

DECISION

We reverse the Examiner's § 102(b) rejection.

REVERSED

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